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Taxonomy & Inventories

A new species of *Miraphaedusa* Nordsieck, 2005 (Gastropoda, Stylommatophora, Clausiliidae) from Guizhou, China

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Abstract

Background

The genus *Miraphaedusa* Nordsieck, 2005 is a group of medium to large clausiliid land snails endemic to Guangxi and Guizhou Provinces of China and consists of three species. It is characterised by a slender to fusiform shell with thick apical part, strongly doubled peristome and several short palatal plicae.

New information

A new species, *Miraphaedusa xihuashida* Chen sp. nov., is described from Tongren, Guizhou, China. It is characterised by the fusiform shell with 10.5–12.25 whorls and

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24.7–27.5 mm shell height, thick, expanded, reflexed and strongly doubled peristome, weak inferior and subcolumellar lamella and short, lateral palatal plicae.

Keywords

land snail, taxonomy, clausiliids, conchology, Phaedusinae

Introduction

Southern China is renowned for its exceptionally diverse fauna of clausiliid land snails (Nordsieck 2001, Nordsieck 2003, Nordsieck 2005, Nordsieck 2007, Nordsieck 2010, Grego and Szekeres 2011, Nordsieck 2012a, Nordsieck 2012b, Nordsieck 2012c, Hunyadi and Szekeres 2016, Nordsieck 2016, Grego and Szekeres 2017, Grego and Szekeres 2019, Grego and Szekeres 2020, Nordsieck 2021). In recent years, a large number of new clausiliid species have been continuously discovered in this region (Hunyadi and Szekeres 2016, Nordsieck 2016, Grego and Szekeres 2017, Grego and Szekeres 2019, Do et al. 2019, Chen 2020, Grego and Szekeres 2020, Chen 2021, Chen and Ouyang 2021, Qiu 2021, Chen 2022, Qiu 2022, Chen et al. 2024a, Chen et al. 2024b , Xu et al. 2024). The species diversity of Clausiliidae here still remains to be explored.

The genus *Miraphaedusa* Nordsieck, 2005 of the family Clausiliidae Gray, 1855 is a group of medium to large land snails, characterised by their slender to fusiform shell with thick apical part, the strongly doubled peristome and several short palatal plicae (Nordsieck 2005, Grego and Szekeres 2011, Nordsieck 2012a, Hunyadi and Szekeres 2016). This genus, confined to a small distribution area in Guangxi and Guizhou, consists of only three species: *M. takagii* Nordsieck, 2005, *M. pretiosa* Nordsieck, 2012 and *M. gregoi* Hunyadi & Szekeres, 2016 (Nordsieck 2005, Grego and Szekeres 2011, Nordsieck 2012a, Hunyadi and Szekeres 2016).

In this study, we describe a new species of *Miraphaedusa* from Tongren, Guizhou, China, based on shell and genital morphology. Its discovery significantly expands the northern limit of the distribution of the genus.

Materials and methods

Specimens were collected from Tongren, Guizhou, China in 2025. Living specimens were placed into boiling water for 10 seconds to take out the soft part, which was then preserved in 95% ethanol separately. Soft parts were softened by soaking in 20% ethanol for 10 minutes before dissection. Empty shells were cleaned, dried and preserved at room temperature. Measurements were taken with digital callipers to the nearest 0.1 mm. Whorls were counted as described by Kerney and Cameron (1979). In the description of the genitalia, the terms proximal and distal relate to the atrium. Photographs were taken by an A7C II camera (Sony, Minato City, Japan) and modified in

Adobe Photoshop CC 2015 (Adobe Systems, San Jose, US). Maps were made in ArcGIS Pro (Esri, Redlands, US).

Abbreviations: NCUMB: Museum of Biology, Nanchang University (Nanchang, Jiangxi, China); ZMNH: Zhejiang Museum of Natural History (Hangzhou, Zhejiang, China); SZ: collection of Miklós Szekeres (Budapest, Hungary).

Taxon treatment

Miraphaedusa xihuashida Chen, sp. nov.

- ZooBank 1F0D7C93-B264-4385-ABD7-0DCCECA049A5

Materials

Holotype:

a. kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: stylommatophora; family: Clausiliidae; genus: *Miraphaedusa*; country: China; stateProvince: Guizhou; municipality: Tongren; locality: Tongren Grand Canyon [铜仁大峡谷]; verbatimLatitude: 27.8825°N; verbatimLongitude: 109.2494°E; eventDate: June 2025; individualID: NCUMB 2507007; individualCount: 1; identifiedBy: Z.-G. Chen; institutionID: Museum of Biology, Nanchang University; occurrenceID: F8F0D039-959A-5C70-A400-54F1BCC33D3A

Paratypes:

a. kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: stylommatophora; family: Clausiliidae; genus: *Miraphaedusa*; country: China; stateProvince: Guizhou; municipality: Tongren; locality: Tongren Grand Canyon [铜仁大峡谷]; verbatimLatitude: 27.8825°N; verbatimLongitude: 109.2494°E; eventDate: June 2025; individualID: NCUMB 2507008–10; individualCount: 3; identifiedBy: Z.-G. Chen; institutionID: Museum of Biology, Nanchang University; occurrenceID: 54EA104A-D052-50A1-9DB6-B2CB0840AD6F

b. kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: stylommatophora; family: Clausiliidae; genus: *Miraphaedusa*; country: China; stateProvince: Guizhou; municipality: Tongren; locality: Tongren Grand Canyon [铜仁大峡谷]; verbatimLatitude: 27.8825°N; verbatimLongitude: 109.2494°E; eventDate: June 2025; individualID: ZMNH AIMS29006; individualCount: 1; identifiedBy: Z.-G. Chen; institutionID: Zhejiang Museum of Natural History; occurrenceID: 2D396C96-D3B0-5BC9-8DA5-3F646A888B51

c. kingdom: Animalia; phylum: Mollusca; class: Gastropoda; order: stylommatophora; family: Clausiliidae; genus: *Miraphaedusa*; country: China; stateProvince: Guizhou; municipality: Tongren; locality: Tongren Grand Canyon [铜仁大峡谷]; verbatimLatitude: 27.8825°N; verbatimLongitude: 109.2494°E; eventDate: June 2025; individualID: SZ 25062506; individualCount: 2; identifiedBy: Z.-G. Chen; institutionID: Collection of Miklós Szekeres; occurrenceID: F1D3F180-D54D-5B3E-8902-6237E785E436

Description

Shell (Fig. 1a). Shell fusiform, sinistral, thick-walled, solid, reddish-brown, with 10.5–12.25 whorls. Whorls have an opaque surface with thin and dense growth lines. Apical part thick. Aperture projected, narrow, oblong. Peristome strongly doubled, thick, expanded and reflexed, with or without indistinct palatal serration. Superior

lamella strong, highest at the position near its outer end, extending to the peristome margin. Weak inferior and subcolumellar lamella closely positioned, the former descending to near to the peristome margin and the latter to the peristome margin. Principal plica long, initiates ventrally and ends near the aperture. Palatal plicae 4–5, short, lateral, nearly straight or slightly curved. Clausilium plate invisible through the aperture in oblique view. Measurements: holotype, shell height 27.5 mm, shell width 6.2
mm, aperture height 6.2 mm, aperture width 4.8 mm; paratypes, shell height 24.7–26.8 mm, shell width 5.8–6.2 mm, aperture height 5.8–6.2 mm, aperture width 4.4–4.7 mm.

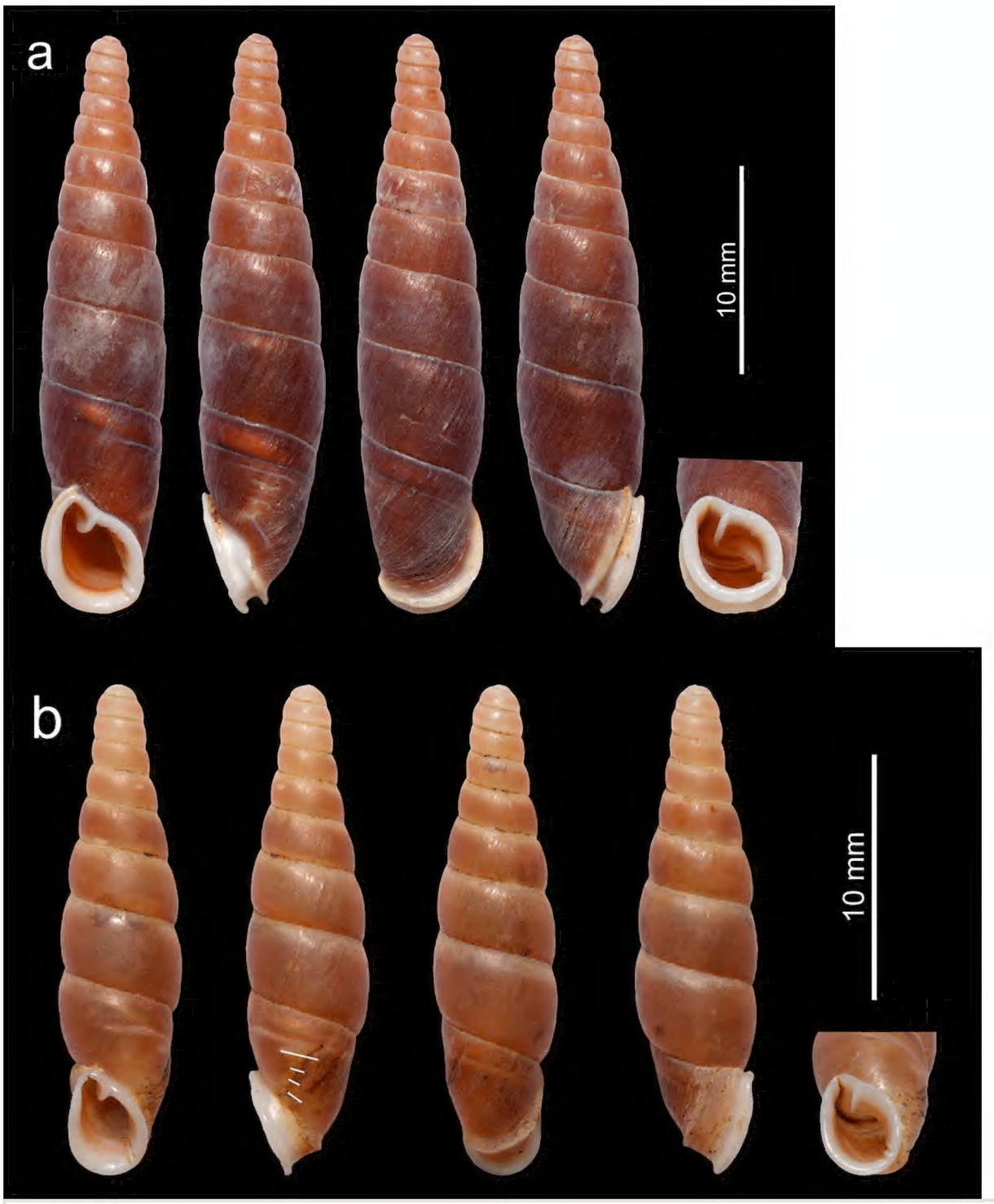

Figure 1.

Miraphaedusa xihuashida Chen, sp. nov. and its most similar congener:

a: *Miraphaedusa xihuashida* Chen, sp. nov., holotype; doi

b: *M. gregoi*, Yanzidong, Huishui, Guizhou, China. doi

Genitalia (Fig. 2). Atrium short and thin. Penis, cylindrical, gradually thickening distally, becoming narrower shortly before the transition to epiphallus. Penial caecum present. Epiphallus thick, shorter than penis. Penial retractor long and thick, inserted at the middle part of epiphallus. Vas deferens relatively thin and short. Vagina thick, cylindrical, longer than free oviduct. Basal part of diverticulum thick, thinning to apical part and attached to spermoviduct. Spermoviduct thick and long. Pedunculus of bursa copulatrix slender and long. Bursa copulatrix large, oblong.

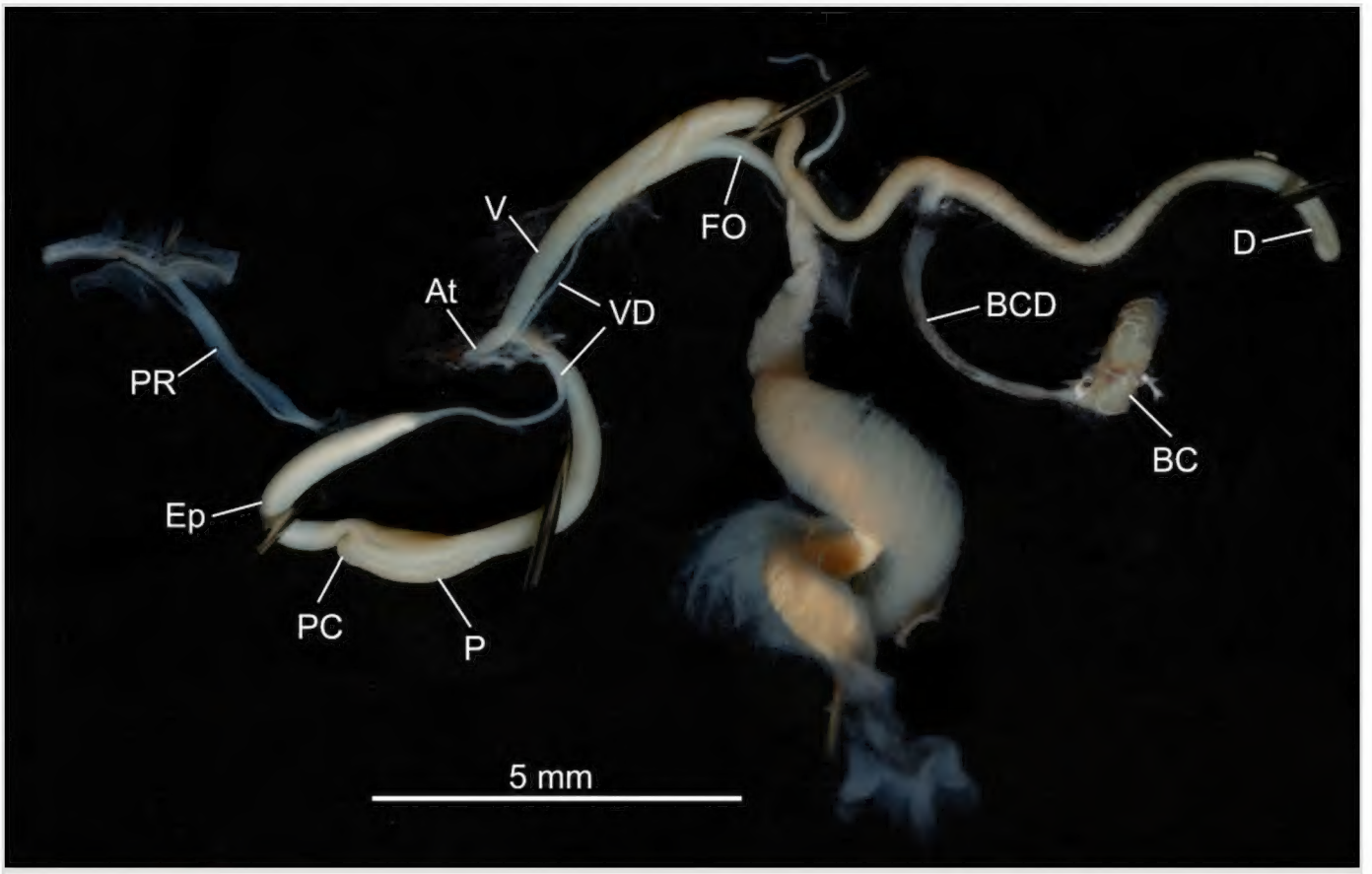

Figure 2. doi

Genitalia of *Miraphaedusa xihuashida* Chen, sp. nov. Abbreviations: At: atrium; BC: bursa copulatrix; BCD: bursa copulatrix duct; D: diverticle of the bursa copulatrix duct; Ep: epiphallus; FO: free oviduct; P: penis; PC: penial caecum; PR: retractor muscle of the penial branch; V: vagina; VD: vas deferens.

Diagnosis

Shell fusiform, thick, solid, opaque, reddish-brown, height 24.7–27.5 mm, with 10.5–12.25 whorls. Peristome strongly doubled, thick, expanded and reflected, with or without indistinct palatal serration. Inferior and subcolumellar lamella close and weak, the former descending to near the peristome margin and the latter descending to the peristome margin. Palatal plicae 4–5, short, lateral, nearly straight or slightly curved. The new species can be easily distinguished from *M. takagii* and *M. pretiosa* by the fusiform shell (vs. slender). It is similar to *M. gregoi* by the similar shell shape, but differs by the larger shell (shell height 24.7–27.5 mm vs. 15.6–18.9 mm), the stronger first peristome, the stronger subcolumellar lamella and the closer position of the two peristome margins (Fig. 1).

Etymology

The specific name is made from the Pīnyīn form for China West Normal University, the alma mater of the first author. Next year will be the 80th anniversary of the university's founding and the first author wishes to commemorate this with the species name. The vernacular name is 西华师大奇管螺 (Pīnyīn: xī huá shī dà qí guǎn luó).

Distribution

Known from the type locality only (Fig. 3).

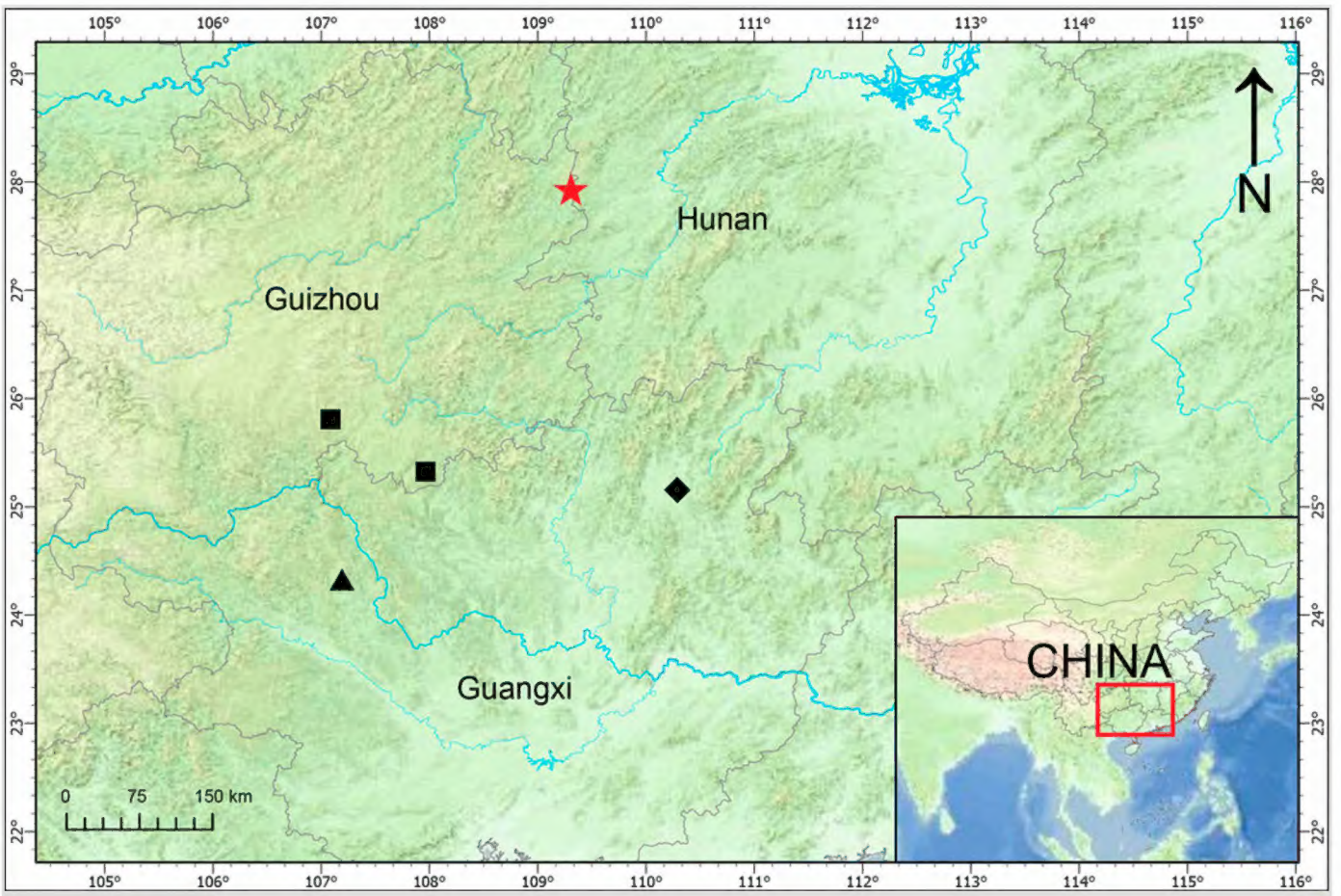

Figure 3. doi

Distribution of *Miraphaedusa* species. Star: *Miraphaedusa xihuashida* Chen, sp. nov., diamond: *M. takagii*, triangle: *M. pretiosa*, squares: *M. gregoi*.

Ecology

Living animals were found under fallen leaves in dense shrubs together with *Cyclophorus* sp. and *Bradybaena* sp.

Taxon discussion

Nordsieck (2012a) treated the monotypic genus *Falsiluna* Grego & Szekeres, 2011 as a subgenus of *Miraphaedusa*. Subsequently, Hunyadi and Szekeres (2016) restored the independence of *Falsiluna*. *Falsiluna harryleei* Grego & Szekeres, 2011, the only species of of its genus, has dextral shell with lunella-like palatal plicae, which strongly differ from those of *Miraphaedusa*. Therefore, we treat *Falsiluna* as an independent

genus, while *Miraphaedusa* contains only three species and *M. xihuashida* Chen sp. nov. The new species occurs in north-eastern Guizhou, far away from the localities of its congeners (Fig. 3).

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References

- Chen ZG, Chen ZY, Lin RX, Dai YT, Wu XP, Jiang J, Ouyang S (2024a) A new species of *Tropidauchenia* Lindholm, 1924 (Gastropoda, Stylommatophora, Clausiliidae, Garnieriinae) from Guangdong, China. Zoosystematics and Evolution 100 (3): 1075-1084. https://doi.org/10.3897/zse.100.126340
- Chen ZG, Jiang J, Lin RX, Xie GL, Dai YT, Wu XP, Ouyang S (2024b) A new species of *Grandinenia* Minato & Chen, 1984 (Gastropoda, Stylommatophora, Clausiliidae, Garnieriinae) from Guangxi, China. Zoosystematics and Evolution 100 (3): 913-922. https://doi.org/10.3897/zse.100.126340
- Chen ZY (2020) A New *Formosana* Species (gastropoda, Stylommatophora, Clausiliidae) from Shanxi Province, North China. Journal of Conchology 43 (5): 497-501.
- Chen ZY (2021) A New Species of *Serriphaedusa* Nordsieck, 2001 (Stylommatophora: Clausiliidae) from Sichuan, China. Venus 79 (1–4): 3-37. https://doi.org/10.18941/venus.79.1-4_34
- Chen ZY, Ouyang KC (2021) A new species and new genus of Clausiliidae (Gastropoda: Stylommatophora) from south-eastern Hubei, China. Folia Malacologica 29 (1): 38-42. https://doi.org/10.12657/folmal.029.004
- Chen ZY (2022) *Bathyptychia shennong* (Gastropoda: Stylommatophora: Clausiliidae), the first new species of terrestrial mollusk described from Shennongjia National Park, Hubei Province, China. The Nautilus 136 (1–2): 29-32.
- Do DS, Grego J, Szekeres M (2019) New taxa and distribution data of Clausiliidae (Gastropoda: Pulmonata) from karst regions of Southeast Asia. Journal of ConChology 43 (1): 303-312.
- Grego J, Szekeres M (2011) New taxa of Asiatic Clausiliidae (Mollusca: Gastropoda). Visaya 3 (2): 4-22.
- Grego J, Szekeres M (2017) New Clausiliidae (Mollusca: Gastropoda) from China. Visaya 4 (6): 79-93.
- Grego J, Szekeres M (2019) Two new species of Clausiliidae (Gastropoda: Pulmonata) from Yunnan Province, southern China. Folia Malacologica 27 (4): 315-320. https://doi.org/10.12657/folmal.027.029
- Grego J, Szekeres M (2020) Six new species of Clausiliidae (Mollusca: Gastropoda) from southern China. Visaya 5 (4): 51-59.

- Hunyadi A, Szekeres M (2016) New taxa and distribution data of Clausiliidae (Gastropoda: Pulmonata) from Southeastern China. Journal of Conchology 42 (2): 129-150.
- Kerney MP, Cameron RAD (1979) A field guide to the land snails of Britain and Northwest Europe. Collins, London, 288 pp.
- Nordsieck H (2001) Revision of the system of the Phaedusinae from mainland China (Gastropoda: Stylommatophora: Clausiliidae), with the description of new taxa. Archiv für Molluskenkunde 129: 25-63. https://doi.org/10.1127/arch.moll/129/2001/25
- Nordsieck H (2003) Systematic and nomenclatural notes on Phaedusinae with the description of new taxa (Gastropoda: Stylommatophora: Clausiliidae). Archiv für Molluskenkunde 132: 121-141. https://doi.org/10.1127/arch.moll/132/2003/121
- Nordsieck H (2005) New taxa of Phaedusinae and Garnieriinae from mainland China and Taiwan (Gastropoda: Stylommatophora: Clausiliidae). Archiv für Molluskenkunde 134: 23-52. https://doi.org/10.1127/arch.moll/0003-9284/134/023-052
- Nordsieck H (2007) Worldwide door snails. ConchBooks, Hackenheim, 214 pp.
- Nordsieck H (2010) New taxa of the subfamilies Neniinae and Garnieriinae (Gastropoda: Stylommatophora: Clausiliidae). Archiv für Molluskenkunde 139: 45-69. https://doi.org/10.1127/arch.moll/1869-0963/139/045-069
- Nordsieck H (2012a) Clausiliidae of Guangxi, southern China (Gastropoda, Pulmonata, Stylommatophora). Acta Conchyliorum 12: 3-56.
- Nordsieck H (2012b) Note on Garnieriini (Gastropoda, Stylommatophora, Clausiliidae, Garnieriinae). Acta Conchyliorum 12: 57-62.
- Nordsieck H (2012c) Check-list of the Clausiliidae of mainland China (Gastropoda, Stylommatophora). Acta Conchyliorum 12: 63-73.
- Nordsieck H (2016) New species taxa of Clausiliidae (Gastropoda, Stylommatophora) from China and Vietnam. Conchylia 47: 37-57.
- Nordsieck H (2021) Taxonomic important shell characters of asiatic Phaedusinae (Gastropoda, Stylommatophdra, Clausiliidae). Acta Conchyliorum 20: 1-56.
- Qiu L (2021) Two new *Tropidauchenia* species (Gastropoda: Clausiliidae: Garnieriinae) from Guangxi, China. Folia Malacologica 29 (3): 147-152. https://doi.org/10.12657/folmal.029.016
- Qiu L (2022) A new species of *Oospira* Blanford, 1872 (Gastropoda: Stylommatophora: Clausiliidae) from Chongqing, China. Faunitaxys, AFCFF (Association française de Cartographie de la Faune et de la Flore) 10 (38): 15.
- Xu ZJ, Cai MW, He ZA (2024) *Formosana ruianensis* n. sp. and transfer of *Oospira xinxingae* Qiu, 2022 to *Formosana* O. Boettger, 1877 (Gastropoda: Clausiliidae). Journal of Conchology 45 (1): 62-69. https://doi.org/10.61733/jconch/4508